

Department of Frontier Sciences for Advanced Environment   List of Laboratories						Department of Environmental Studies for Advanced Society   List of Laboratories						
Division	Laboratory	Research Theme [Faculty Members]		Educational Courses	Entrance Examination Groups	Division	Laboratory	Research Theme [Faculty Members]		Educational Courses	Entrance Examination Groups	
Core Divisions	Urban Environment and Environmental Geography	Environmental Geography	Understanding Diverse Human-Environment Relationships from Geographical Perspectives [ Prof. Tomoki Nakaya / Assist. Prof. Ryohei Sekine / Assist. Prof. Masaki Kotsubo ]	CES	Env/Geo	Resources Strategies	Geo-environmental Measurement and Analysis	Measurement, observation and equipment development for understanding of various geosphere information [ Assist. Prof. Nobuo Hirano ]	-	-		
	International Study on Disaster Risk Reduction	Review and Propose International Disaster Risk Reduction Policies from Geographical and Practical Perspectives [ Prof. Yuichi Ono IRIDES / Prof. Kozo Nagami GGI / Assoc. Prof. Daisuke Sasaki IRIDES / Assist. Prof. Yuta Hara IRIDES ]	CES	Env/Geo	Design of Environment-Friendly Materials	Design of materials harmonizing with environment and life [ Prof. Masanobu Kamitakahara / Assist. Prof. Masaki Umetsu ]	-	Energy				
	Solar and Terrestrial Systems and Energy Sciences	Process Engineering for Advanced Resources Utilization	Aiming at Advanced Metal Production Process with Maximum Energy Efficiency & Minimum Environmental Load [ Prof. Taichi Murakami / Assist. Prof. Ryota Higashi ]	EmP	Materials	Geoenvironmental Remediation	The Development of Environmental Friendly Biotechnologies for Pollution Remediation and Resource Recovery [ Assoc. Prof. Mei-Fang Chien / Assist. Prof. Ning Han ]	-	Energy	※		
		Earth System Monitoring and Instrumentation	Variations of ozone and related trace species in the atmosphere [ Assoc. Prof. Isao Murata ]	CES	Env/Geo	Geomaterial and Energy	Geo-environmental systems driven by fluid-rock reactions [ Prof. Atsushi Okamoto / Assist. Prof. Otgonbayar Dandar ]	-	Energy			
		Urban and Regional Environmental Systems	Researches on Water Resources and Environments [ Prof. Yu-You Li GSE / Prof. Daisuke Sano GSE / Prof. Daisuke Komori GGI / Assoc. Prof. Kengo Kubota / Assist. Prof. Aken Puti Wangyun ]	CES	Env/Geo		Development of subsurface measurement technologies for energy utilization on environmental issue [ Prof. Hirokazu Moriya GSE ]	-	Energy			
	Environmentally Benign Systems	Recycling Chemistry	Aimed on the realization of a resources-material recycling society [ Prof. Toshiaki Yoshioka / Assoc. Prof. Shogo Kumagai GSE / Assist. Prof. Phanthong Patchiya ]	AEC	Chem/Bio	Earth Exploitation Environmental Studies	Development of next generation earthwork and quarry systems powered by intelligent heavy equipment [ Assist. Prof. Tomoaki Sotomi ]	-	Energy	※		
		Environmental Analytical Chemistry	Development of Chemical Motifs for Environmental and Biomedicinal Analysis [ Prof. Nobuhiko Iki / Assist. Prof. Ryunosuke Karashimada / Assist. Prof. Ryota Sawamura ]	AEC	Chem/Bio	Resource Circulation and Environmental Applications	Efficiently cycling resources and CO <sub>2</sub> for a cleaner environment [ Prof. Atsushi Iizuka / Assist. Prof. Hsing-Jung Ho ]	-	Energy			
		Environmental Bioengineering	Development of Environmental/Biomedical Sensors and Visualization Systems for Material Functions with Micro/Nano Electrodes [ Prof. Hitoshi Shiku GSE / Assoc. Prof. Kosuke Ino GSE ]	AEC	Chem/Bio	Environmental Harmony System Science	New way of advanced utilization of geo-environment and energy/resource development [ Prof. Kiyotoshi Sakaguchi ]	-	Energy			
	Sustainable Recycle Process	Environmental Green Process Study	Advancement of model-based process development for sustainable circular society [ Prof. Yasuhiro Fukushima / Prof. Masaru Watanabe GSE / Assoc. Prof. Hajime Ohno / Assist. Prof. Koki Yagihara / Assist. Prof. Tsai-Wei Wu ]	AEC	Chem/Bio	Frontier Science for Environmental Functional Materials	Development of Functional Non-Metal Light Element Materials for a Sustainable Society [ Prof. Yoshinori Sato ]	-	Energy			
		Mechanics and Design of Composite Materials	Design, development and evaluation of multi-functional composite materials [ Prof. Fumio Narita / Assoc. Prof. Hiroki Kurita / Assist. Prof. Zhenjin Wang ]	EmP	Materials	Energy Resources	Distributed Energy System	Toward the development of sustainable energy system [ Prof. Tatsuya Kawada / Prof. Keiji Yashiro Toyama Univ. / Assoc. Prof. Kazuhisa Sato GSE / Assist. Prof. Mina Yamaguchi ]	-	Energy	※	
Cooperative Divisions	Ecomaterial Design and Process Engineering	Environmentally-Benign Molecular Design and Synthesis	Innovative experimental and theoretical technologies on chemical engineering for creating sustainable society [ Assoc. Prof. Masaki Ota GSE ]	AEC	Chem/Bio		Resources and Energy Security	The Deepening of Geo-Environmental Science and Sustainable Resource and Energy Development [ Prof. Noriaki Watanabe / Assist. Prof. Jiajie Wang / Assist. Prof. Eko Pramudyo / Assist. Prof. Luis José Salalá Santos ]	-	Energy		
		Environmental Materials Surface Science	Atomic-level design of novel catalyst materials for eco-friendly society [ Assoc. Prof. Naoto Todoroki ]	EmP	Materials		Designing of Nano-Ecomaterials	Development of functional nano-ecomaterials for energy and environment in the environmentally benign systems [ Prof. Hideyuki Takahashi / Assoc. Prof. Shun Yokoyama / Assist. Prof. Koji Yokoyama ]	-	Energy		
	Earth and Environmental Systems Design	Energy Conversion Chemistry	Research on innovative materials for advanced batteries with high performance and low environmental impact [ Prof. Itaru Honma / Assoc. Prof. Saneyuki Ohno / Assoc. Prof. Kazuyuki Iwase / Assist. Prof. Moriyuki Kanno ]	AEC	Chem/Bio		International Energy Resources	Interdisciplinary study on energy and resources including natural and social sciences for sufficient and sustainable society [ Prof. Noriyoshi Tsuchiya / Assoc. Prof. Hiromi Kubota / Assist. Prof. Kazumasa Sueyoshi / Assist. Prof. Bayarbald Manzshir ]	-	Energy	※	
		Polymer Hybrid Nanomaterials	Reveals the core of hierarchical structural dynamics of hybrid nanomaterials using synchrotron X-ray analysis [ Prof. Maiko Nishibori / Lecturer Sachiko Ohyama / Assist. Prof. Kakeru Ninomiya ]	SRIS	AEC	Environmental Policies	Environmental Urban Energy	To realize carbon neutrality, we conduct research on socio-techno-economic transition and facilitate urban decarbonization process [ Assoc. Prof. Takuro Kobashi / Assist. Prof. Tuo Zhang ]	-	Human/Social		
	Society of Northeast Asia	Study on Multicultural Society	We provide students with knowledge and skills required for specialists in Social Anthropology and Northeast Asian Studies [ Assoc. Prof. Toshihiro Ueno / Assoc. Prof. Yongchao Cheng ]	CNEAS	CES		Environmental and Energy Economics	Integrated analysis of material flows and economic activities contributing sustainable resource management [ Prof. Kazuyo Matsubae / Assist. Prof. Zhengyang Zhang / Assist. Prof. Oscar Tiku ]	-	Human/Social		
		Cultural Ecology Conservation	We explore the sustainable future of human-nature relations through the anthropological fieldwork reflecting the cultural diversities in human history [ Prof. Hiroki Takakura ]	CNEAS	CES		Industrial Ecology	Understanding the environmental impacts of global supply chain and consumption [ Assoc. Prof. Keiichiro Kanemoto / Assist. Prof. Yuya Katafuchi / Assist. Prof. Nguyen Tien Hoang / Research Assoc. Megumi Hoshi ]	-	Human/Social		
	Culture of Northeast Asia	Japanese History	Studies of the history of Edo period from analyzing original historical documents that remain in the local communities of Japan [ Assoc. Prof. Daisuke Sato ]	IRIDES	CES	Advanced Policies for Environment	Powder Processing for Functional Materials	Earth-friendly Environmental Powder Technology [ Prof. Junya Kano / Assist. Prof. Kizuku Kushimoto ]	IMRAM	-	Energy	
		Environmental Governance & Transformation	Examining global environmental governance and its transformation from traditional social science, interdisciplinary, and transdisciplinary perspectives [ Assoc. Prof. Atsushi Ishii ]	CNEAS	CES		Extraction of Crustal Energy	Application of extreme environments in the earth's crust and unconventional energy resources for sustainable human life [ Prof. Takatoshi Ito / Assoc. Prof. Anna Suzuki / Assoc. Prof. Yusuke Mukuhira ]	IFS	-	Energy	※
		Ethnic Culture and Environment	What will become of the Russian language spoken by Russians outside of Russia? [ Assoc. Prof. Kenji Yanagida ]	CNEAS	CES		Metallurgy and Recycling System for Metal Resources Circulation	For Achievement of Sustainable Society [ Prof. Etsuro Shibata / Assist. Prof. Ken Adachi ]	IMRAM	-	Energy	
		Cultural Evolution	Quantitative analysis of cultural phenomena in human history, with the development of theories, methods, and academic infrastructure supporting such research [ Assoc. Prof. Kohei Tamura ]	CNEAS	CES		Energy and Environmental Materials Creation	Development of new energy materials and environmentally-conscious materials for opening up our future [ Prof. Takahisa Omata / Lecturer Issei Suzuki / Assist. Prof. Tomoyuki Yamasaki ]	IMRAM	-	Energy	
		Memory and Social Dynamics	This course studies memory, history, and society in East Asia in relation to mutual influences, by field research and historiographical methods. [ Assoc. Prof. Yumi Ishii ]	CNEAS	CES		High-Temperature Physical Chemistry of Materials	Bring innovation to materials processing [ Prof. Hiroyuki Fukuyama / Assoc. Prof. Makoto Ohtsuka / Assoc. Prof. Masahito Uchikoshi / Lecturer Masayoshi Adachi ]	IMRAM	-	Energy	
Physical Chemistry for Environmental Materials	Environmental Anthropology	Mixed methods research on human-environmental interactions in societies for resilience amid climate change and increasing disasters [ Prof. Alyne Elizabeth Delaney ]	CNEAS	CES	Control of Environmental Materials DOWA Holdings Co.,Ltd.	Environmental Policy and Impact Assessment	Assessment of the social and environmental impacts of resource use for better management of anthropogenic stocks and flows [ Prof. Kazuyo Matsubae / Prof. Tomoki Nakaya / Prof. Minoru Tobita / Assoc. Prof. Masahito Yoshimura ]	-	※			
		Disaster and Society Studies	We study disasters and crises through a socio-cultural lens, promoting interdisciplinary, practice-based education, research, and community inclusion. [ Assoc. Prof. Sébastien P. Boret ]	IRIDES	CES	Environmental Process Science	Development of material synthesis and recycling processes necessary for resource circulation [ Prof. Hideyuki Takahashi / Prof. Tomohito Kameda / Prof. Balachandran Jayadevan / Assoc. Prof. Mei-Fang Chien / Assoc. Prof. Masahito Yoshimura ]	-	Energy	※		
		Chemistry for Environmental Inorganic Materials	Development of advanced optical functional and environmentally sensitive materials by soft chemistry process [ Prof. Shu Yin / Assoc. Prof. Takuuya Hasegawa / Assist. Prof. Ayahisa Okawa ]	IMRAM	AEC	Environmental Policy Implementation Studies	Development and social implementation of sustainable technologies for resource circulation and treatment of waste [ Prof. Toshiaki Yoshioka / Prof. Yuko Saito ]	-	Human/Social	※		
		Hybrid Nanosystem	Development of Hybrid Materials based on Multidisciplinary Precise Synthesis Across Organic, Inorganic, and Bio towards Sustainable Society [ Prof. Kiyoshi Kanie / Lecturer Masaki Matsubara / Assoc. Prof. Megumi Suyama ]	IMRAM	AEC	Course for Environmental harmony design of hard materials	Development of designing(simulation) study for maximum properties and environmental harmony in cemented carbide and other hard materials [ Prof. Masaru Kawakami / Prof. Masanobu Kamitakahara / Prof. Tatsuya Kawada / Prof. Atsushi Okamoto / Prof. Noriaki Watanabe / Assist. Prof. Sota Terasaka ]	-	Energy	※		
		Hybrid Carbon Nanomaterials	Synthesis of hybrid nanocarbons using controlled nanospace as a reaction field and their application to advanced fields [ Prof. Hirotomo Nishihara ]	AIMR, IMRAM	AEC	Environmental Risk Assessment	Studies for utilization of safe and secure geothermal energy [ Prof. Yasuhide Sakamoto / Prof. Kyohei Okamoto ]	National Institute of Advanced Industrial Science and Technology	-	Energy	※	
Environmental System and Materials	Hydrogen Functional System Materials	Hydride Research for Innovative Energy Applications [ Prof. Shin-ichi Orimo / Assoc. Prof. Toyoto Sato / Assist. Prof. Yusuke Ohashi ]	AIMR, IMR	EmP	Endowed Divisions	Innovation for Regional Environment	Academic foundation for creative innovation in the local environment by promoting the development of carbon-neutral technologies [ Prof. Noriyoshi Tsuchiya / Prof. Takayuki Saito / Prof. Tetsuo Honma / Assoc. Prof. Hirotada Arai / Assoc. Prof. Suntae Lee ]	-	※			
	Innovative Analytical Pyrolysis Frontier Laboratories Ltd.	Development of analytical methods and instruments for polymer characterization by Pyrolysis-GC/MS [ Prof. Toshiaki Yoshioka / Assoc. Prof. Atsushi Watanabe (Frontier Laboratories Ltd.) / Assoc. Prof. Shogo Kumagai / Assist. Prof. Siqingaoa Borjigin ]	AEC	Chem/Bio		Those who wish to apply for the laboratories with the sign ※, please contact the Academic Affairs Section in advance. [Educational Courses] CES : Cultural Environmental Studies EmP : Eco-materials and Processing AEC : Applied Environmental Chemistry [Entrance Examination Groups] Human/Social : Human and Social Science Group Env/Geo : Environment and Geography Group Chem/Bio : Chemistry and Bioengineering Group Materials : Materials Group Energy : Environmental & Energy Group [Institution] AIMR : Advanced Institute for Materials Research CNEAS : Center for Northeast Asian Studies FRI : Fracture and Reliability Research Institute GGI : Green Goals Initiative GSE : Graduate School of Engineering IFS : Institute of Fluid Science IMR : Institute for Materials Research IMRAM : Institute of Multidisciplinary Research for Advanced Materials IRIDES : International Research Institute of Disaster Science SRS : International Center for Synchrotron Radiation Innovation Smart						
Endowed Division	Process Engineering for Environmentally Adapted Materials	Development of new steelmaking technology contributing to the energy and resources sustainable society [ Prof. Masaru Matsumura / Prof. Tomohiko Omura / Prof. Shinya Nariki ]	Nippon Steel Corporation	EmP	Collaborative Division	Global Environment	Observation of Global Atmospheric Environment and Carbon Cycle Changes [ Prof. Shinichiro Nakaoka / Prof. Hisashi Yashiro ]	National Institute for Environmental Studies	CES	Env/Geo		
Collaborative Divisions												



